

CLAIMS:

1. A method comprising:
transmitting a USB token packet to a first module of a medical device;
5 when the first module has a data packet to transfer, receiving the data packet from the first module; and
transferring the data packet to a second module of the medical device using a USB protocol.
- 10 2. The method of claim 1, further comprising encoding the data packet using an NRZI encoding scheme.
3. The method of claim 1, further comprising transferring the data packet in one of an isochronous mode, an interrupt mode, a bulk data transfer mode, and a control mode.
- 15 4. The method of claim 1, further comprising, when the first module has no data packet to transfer, receiving an indication that the first module has no data packet to transfer.
5. The method of claim 1, further comprising assigning an address to each of the first and second modules.
- 20 6. The method of claim 1, further comprising associating at least one pipe with each of the first and second modules.
- 25 7. The method of claim 1, wherein the medical device comprises at least one of a therapy control module, a user interface module, and a patient parameters module.
8. The method of claim 1, wherein the medical device comprises a defibrillator.
- 30 9. A method for programming a module of a medical device, the method comprising:

transferring program data to the module using a USB protocol; and
storing the program data in a memory associated with the module.

10. The method of claim 9, further comprising encoding the program data using
an NRZI encoding scheme.

11. The method of claim 9, further comprising transferring the program data in
one of a bulk data transfer mode, an interrupt mode, and an isochronous mode.

12. The method of claim 9, wherein the medical device comprises at least one of a
system controller, a therapy control module, a user interface module, and a patient
parameters module.

13. The method of claim 12, wherein at least one of the system controller, the
therapy control module, the user interface module, and the patient parameters module
comprises a serial data interface to transfer data using the USB communication protocol.

14. The method of claim 12, wherein the medical device comprises a defibrillator.

15. A processor-readable medium containing instructions for causing a processor
in a medical device to:

transmit a USB token packet to a first module of the medical device;

when the first module has a data packet to transfer, receive the data packet from the
first module; and

transfer the data packet to a second module of the medical device using a USB
protocol.

16. The processor-readable medium of claim 15, further containing processor-
executable instructions for encoding the data packet using an NRZI encoding scheme.

17. The processor-readable medium of claim 15, further containing processor-executable instructions for transferring the data packet in one of an isochronous mode, an interrupt mode, a bulk data transfer mode, and a control mode.

5 18. The processor-readable medium of claim 15, further containing processor-executable instructions for, when the first module has no data packet to transfer, receiving an indication that the first module has no data packet to transfer.

10 19. The processor-readable medium of claim 15, further containing processor-executable instructions for assigning an address to each of the first and second modules.

15 20. The processor-readable medium of claim 15, further containing processor-executable instructions for associating at least one pipe with each of the first and second modules.

21. The processor-readable medium of claim 15, wherein the medical device comprises at least one of a therapy control module, a user interface module, and a patient parameters module.

20 22. The processor-readable medium of claim 15, wherein the medical device comprises a defibrillator.

23. A processor-readable medium containing instructions for causing a processor in a medical device to:

25 transfer program data to a module of the medical device system using a USB protocol; and

store the program data in a memory associated with the module.

30 24. The processor-readable medium of claim 23, further containing processor-executable instructions for encoding the program data using an NRZI encoding scheme.

25. The processor-readable medium of claim 23, further containing processor-executable instructions for transferring the program data in a bulk data transfer mode.

26. The processor-readable medium of claim 23, wherein the medical device comprises at least one of a system controller, a therapy control module, a user interface module, and a patient parameters module.

27. The processor-readable medium of claim 26, wherein at least one of the system controller, the therapy control module, the user interface module, and the patient parameters module comprises a serial data interface to transfer data using the USB communication protocol.

28. The processor-readable medium of claim 23, wherein the medical device comprises a defibrillator.

29. A medical device comprising:
a system control module;
a plurality of functional modules; and
a system bus coupled to the system control module and to the plurality of functional modules, the system bus arranged to transfer data packets between the functional modules and the system control module according to a USB protocol.

30. The medical device of claim 29, wherein the plurality of functional modules comprises a therapy control module.

31. The medical device of claim 30, wherein the therapy control module comprises a defibrillator electrode.

32. The medical device of claim 29, wherein the plurality of functional modules comprises a user interface module.

33. The medical device of claim 32, wherein the user interface module is communicatively coupled to at least one of a keyboard, a display screen, a strip chart recorder, an LED arrangement, a rotary encoder device, and a touch screen.

5 34. The medical device of claim 29, wherein the plurality of functional modules comprises a patient parameters module.

10 35. The medical device of claim 34, wherein the patient parameters module is configured to obtain at least one of multi-lead ECG measurements, EEG measurements, vital sign measurements, non-invasive blood pressure (NIBP) measurements, invasive blood pressure measurements, temperature measurements, ETCO₂ information, and SpO₂ information from a patient.

15 36. The medical device of claim 29, wherein the plurality of functional modules comprises an expansion module to communicate data with at least one device external to the medical device system.

20 37. The medical device of claim 36, wherein the expansion module is selected from the group consisting of: a USB-compatible root hub, a hub, a simple device, and a complex device.

38. The medical device of claim 29, wherein the data packets are encoded using an NRZI encoding scheme.

25 39. The medical device of claim 29, wherein the data packets are transferred in at least one of an isochronous mode, an interrupt mode, a bulk data transfer mode, and a control mode.

30 40. The medical device of claim 29, wherein the system control module is configured to assign addresses to the functional modules.

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42. The medical device of claim 29, wherein the medical device comprises a defibrillator.